SCDHEC-OCRM – NOAA Section 309 Strategy & Assessment

2006-2010

Available online @ http://www.scdhec.net/environment/ocrm/pubs/reports.htm

Excerpts related to the Shoreline Change Initiative

(updated with new information in italics)

Assessment (2001-2005)

1. Identify any ongoing or planned efforts to develop quantitative measures for this issue area.

South Carolina has not assessed the impact of sea level rise on coastal communities and critical habitats such as coastal wetlands. As an example, a conservative estimate of potential land loss in the northeastern coastal region of North Carolina over the past 25 years on 1,593 miles of mapped estuarine shoreline is 537 acres per year (Stanley Riggs, *Shoreline Erosion in North Carolina Estuaries,* The Soundfront Series, NC Sea Grant, Raleigh, NC, Pub. UNC-SG-01-11, 68 pp). An analysis of South Carolina beachfront and estuarine shorelines is necessary to determine if similar risks exist in this state.

DHEC-OCRM has several ongoing initiatives to improve data acquisition and planning for shoreline change:

- Information on coastal hazards will be collected as part of the NOAA performance measure tracking efforts;
- DHEC-OCRM is acquiring a comprehensive (imagery) dataset for the Critical Area that will include tidal creeks, stormwater ponds, docks, bridges, piers, and marsh vegetation. These data will be acquired from high-resolution ($0.25m^2$) aerial photography obtained by both the DNR and DHEC-OCRM, and can be used for improved assessments of shoreline changes.
- *DHEC-OCRM is acquiring Pictometry ® imagery (high-resolution, oblique angles) purchased by local governments in the coastal zone. The imagery can be used to identify and characterize shoreline alterations.*
- *DHEC-OCRM is funding researchers from Clemson University's Strom Thurmond Institute to examine the past and future of the state's "shoreline retreat" policy based on perspectives of government officials, property owners, and various stakeholders.*
- *DHEC-OCRM is working with the SC Sea Grant Consortium and selected researchers to develop a "state of the knowledge" report on past and projected shoreline changes in SC's coastal zone.*

- *DHEC-OCRM is working with the SC Department of Natural Resources to perform a "meta-analysis" of past SC beach nourishment projects, monitoring conditions, and environmental effects.*
- *DHEC-OCRM is working with Coastal Carolina University to develop an inventory of historical beachfront shorelines, reexamine long-term erosion rates, and create new dune field contour maps.*
- *DHEC-OCRM is supporting the Belle W. Baruch Foundation in Georgetown, SC to evaluate a shoreline stabilization alternative that is intended to promote vegetation and limit impacts to water quality and interference with coastal processes.*
- *DHEC-OCRM was awarded a NOAA Coastal Management Fellow (Matthew Slagel) to support the agency's regulatory and policy efforts related to shoreline change from 2007-2009.*

2. Summarize the risks from inappropriate development in the state, e.g., life and property at risk, publicly funded infrastructure at risk, resources at risk.

Over the past decade, South Carolina's eight coastal counties have experienced rapid growth. This growth has resulted in even greater pressures to develop waterfront properties – not only beachfront, but also along estuarine, riverine, and tidal creek shorelines. At the same time, many of these shorelines are experiencing erosion due to natural (e.g. barrier island migration, sea level rise, coastal storms) and anthropogenic (e.g. jetties, dams, vessel wakes) forces. Scientists are projecting increased rates of sea level rise in response to global climate change. Over the past century, relative sea level rise is estimated between 23-30 cm, and projections range from doubling to even tripling of that rate during the coming century. Neighboring North Carolina has already documented land loss of 537 acres per year for 1,593 miles of shoreline they have mapped. Shoreline erosion is expected to increase as the rate of sea level rise increases; as are the impacts of coastal storms. The coast is considered overdue for a major hurricane strike – the last significant storm impact occurred in 1989 (Hurricane Hugo). While the scientific community has accumulated data that characterize and project these impacts, South Carolina is falling behind in providing this important information to its coastal managers, local agencies and the public. DHEC-OCRM is anxious to gather the data that exist for this state, provide a realistic and clear analysis of current trends and future scenarios, and consider the implications of various policy alternatives.

Management Characterization

1. Indicate significant changes to the State hazards protection programs since the last assessment:

Programs	Status
Building setbacks/restrictions	No change
Methodologies for determining setbacks	No change
Repair/rebuilding restrictions	Change to damage threshold for oceanfront erosion control structures

Restriction of hard shoreline protection structures	Regulatory change on non-beachfront locations
Promotion of alternative shoreline stabilization methodologies	No change
Renovation of shoreline protection structures	Change to damage threshold for oceanfront erosion control structures
Beach/dune protection	No change
Permit compliance	No change
Inlet management plans	No change
Special Area Management Plans	No change
Local hazards mitigation planning	SC Hazard Mitigation Plan
Local post-disaster redevelopment plans	Review of local beachfront mgt plans
Real estate sales disclosure requirements	No change
Restrictions on publicly funded infrastructure	No change
Public education and outreach	Low Impact Development workshop; Alternative BMP workshop
Mapping/GIS/tracking of hazard areas	SC Critical Area change analysis with high resolution, aerial photography; SC-GA Coastal Erosion Study

2. For categories with changes: Summarize the change; specify whether it was a 309 or other CZM driven change and specify funding source; and characterize the effect of the changes in terms of both program outputs and outcomes.

Building setbacks/restrictions

No change during this period.

Methodologies for determining setbacks

No change has occurred in the methodology for determining beachfront setback lines. The setback line's distance from the baseline varies along the coast and is determined by the annual erosion rate in that particular area. Stable or accreting beaches have a minimum 20 foot setback line, while erosion areas have setbacks of as much as 400 feet. DHEC-OCRM is currently contracting with Coastal Carolina University to analyze historic beachfront erosion data and the findings will be used for beachfront management applications. Section 306 funding was used for this contract.

Repair/rebuilding restrictions

The damage threshold for oceanfront erosion control structures, such as seawalls, changed from two-thirds to one-half in June 2005. For example, if a seawall is more than 50 % destroyed, then it is considered damaged beyond repair and cannot be rebuilt. The damage threshold for houses remains at two-thirds. This changed occurred in accordance with the state's Beachfront Management Act, as amended, and was not related to 309

activities. It was scheduled to change in 2005 under the original Act as part of the long-term retreat strategy.

Restriction of hard shoreline protection structures

The ban on new hard shoreline protection structures remains in place for beachfront areas. However, in non-beachfront locations, shoreline stabilization structures are now only allowed if the property owner is losing high ground property [(30-12(C)(1)(c)]. The regulatory change was intended to reduce the hardening of tidal shorelines with unnecessary walls and revetments. The regulation is not new, rather it was changed in June of 2003 by replacing the word "discouraged" with "prohibited". DHEC-OCRM had seen an increase in the number of property owners who wanted to improve and/or raise their yards by using a wall in wetland transitional areas, and DHEC-OCRM took the position that wetland areas should not be impacted for this reason. Property owners are allowed to construct a wall landward of the critical area line. This new regulation was not related to past 309 initiatives or funding.

Promotion of alternative shoreline stabilization methodologies

No change during this period.

Renovation of shoreline protection structures

See section on repair/rebuilding restrictions.

Beach/dune protection

No change during this period.

Permit compliance

No change during this period.

Inlet management plans

No change during this period.

Special Area Management Plans

No change during this period.

Local hazards mitigation planning

The SC Hazard Mitigation Strategy Plan was developed in 2002 by the South Carolina Emergency Management Division, and implements a major statewide program to achieve greater disaster resistance at the community level. This program is designed to encourage local governments to significantly increase their hazard mitigation and post-disaster redevelopment capabilities. DHEC-OCRM reviewed and commented on the plan prior to implementation. In addition DHEC-OCRM staff participated in local government planning through the Project Impact program. This program, originally sponsored by FEMA, assists local communities in becoming more disaster resistant. Although funding for the national program was discontinued in 2001, Charleston County continues to administer a local Project Impact program (http://www.charlestoncounty.org/index2.asp?p=/departments/BuildingServices/projectimpact.htm). The county program performs public education

projects to encourage community resiliency to hazard events, including dissemination of information on codes for new construction and retrofitting, supporting teacher and student projects related to hazard awareness, and conducting seminars for the general public and professional service providers. These activities were not related to 309 or CZM initiatives or funding.

Local post-disaster redevelopment plans

Although no program change has occurred regarding the development of local plans, DHEC-OCRM recently reviewed all fourteen of South Carolina's local-level beachfront plans to determine their compliance with the South Carolina Beachfront Management Act. These plans are intended to ensure management of the beachfront area on both a state and local level, and local governments must continue to implement these plans in order to remain eligible for renourishment funding. The plan reviews were not related to 309 initiatives or funding.

The 2003 review of the beachfront management plans found that most communities were either in compliance or had made significant efforts to come into compliance. However, given the increasing risks associated with sea level rise and hurricanes, and the pressure to develop the remaining shorelines of our coast, plans would benefit from improvements through enhancing strategies for meeting the 40-year retreat policy, strengthening coordination of post-disaster recovery activities, and increasing the ability to integrate data and GIS capabilities in the planning process.

Real estate sales disclosure requirements

No change during this period.

Restrictions on publicly funded infrastructure

No change during this period.

Mapping/GIS/tracking of hazard areas

DHEC-OCRM is obtaining 0.25 meter resolution aerial photography of the DHEC-OCRM Critical Area, which will be used to assess changes in areas of concern. This imagery acquisition is being funded with Section 306 funding. In addition, Trimble GPS units were obtained in summer 2005 for use in post-storm field assessments. These GPS units have custom ArcPad screens that display ArcGIS parcel and structure data and allow for more efficient input of information. DHEC-OCRM conducted a hurricane drill in August 2005 and the GPS units were successfully utilized in beachfront structural assessments. These units were also funded with Section 306 funding.

The South Carolina-Georgia Coastal Erosion Study is a collaborative effort between researchers from the USGS, CCU, USC, College of Charleston, and the Sea Grant Consortium aimed at understanding the process of coastal erosion and the factors that affect erosion rates along the SC/GA coasts. A web site was developed to present the findings of the Coastal Erosion Study to the general public, including online maps of the SC/GA coasts, beach cameras, and a listing of the equipment used to collect data for the Coastal Erosion Study. Information on this study can be viewed online at http://gis.coastal.edu/.

3. Discuss significant impediments to meeting the 309 programmatic objectives (e.g., lack of data, lack of technology, lack of funding, legally indefensible, inadequate policies, etc.)

Data Limitations – During a 309 Strategy planning meeting, stakeholders and staff indicated that the lack of accurate data for coastal elevations and sea level rise impeded planning and modeling efforts related to shoreline change. Historical shoreline aerial imagery archived at DHEC-OCRM also needs to be inventoried and digitized. At the same time, the numbers and trends of shoreline stabilization devices are presently unknown, because: 1) DHEC-OCRM permits were not consistently "coded" as bulkheads, revetments, etc., until 2001; and 2) non-beachfront bulkheads do not require a permit if constructed on the upland component of a shoreline parcel. Another data limitation involves the tracking of beach renourishment projects in South Carolina. To date, no synthesis of beach nourishment impacts (beach and borrow areas), longevity, spatial distribution, etc. have been undertaken, and DHEC-OCRM's required monitoring conditions have varied from permit to permit.

Technology Limitations – Local and state managers need to be able to visualize shoreline change in relation to local data layers and plans. Currently, hazards data related to shoreline change, topography, flooding projections, natural and cultural resources, and socioeconomic settings are not well integrated in South Carolina. A GIS-based web portal is needed to bring together various data layers in a user-friendly application to allow risk analysis and planning for future coastal hazards.

Inadequate Policies – The SC Coastal Management Program has a number of policies and regulations that influence shoreline development. Most importantly, the state has adopted a policy of "retreat" from eroding beaches. Under the state's Beachfront Management Act, DHEC-OCRM establishes and periodically revises two lines of jurisdiction for oceanfront property: the "baseline" and the more landward 40-year "setback line." These lines establish the boundaries for the state's jurisdiction, and are used to regulate the size and location of new or replacement structures located near the beach. Seaward of the setback line, new erosion control structures such as seawalls and rock revetments are banned, and new habitable structures are limited in size to 5,000 square feet of heated space. These same lines are used to regulate the repair or reconstruction of existing erosion control structures and habitable structures following a storm. Existing seawalls cannot be rebuilt if the degree of damage to the structure exceeds 50%, while existing habitable structures must be rebuilt farther landward, if possible, when storm-related damage exceeds 66%. In order to enforce these building restrictions DHEC-OCRM must conduct post-storm damage assessments. These damage assessments are based on the pre-storm condition of the structure. In an attempt to document pre-storm conditions, over the years the agency has developed a mix of digital and print photographs of most oceanfront structures in the state. Houses that are presently out of the state's jurisdiction may become jurisdictional if the baseline and setback line are revised landward.

While this framework has been somewhat successful and appears to ensure shoreline retreat, DHEC-OCRM is faced with continuous pressures to allow special exceptions to the baseline and setback restrictions. In addition, local governments can petition the state to

have the regulatory baseline moved seaward if the shoreline appears to have stabilized over the course of several years. Once new structures are established in this high-hazard area, there is a greater pressure to reinforce the shoreline through renourishment or other stabilization methods.

There is no similar policy of retreat for non-beachfront shorelines. Developments and alterations are generally not permitted by DHEC-OCRM to encroach into tidal marshes, including the transitional banks of the marshes. However, Critical Area permit applications for bulkheads and revetments along non-beachfront, eroding shorelines appear to be increasing over the past few years, and permits are not required for erosion control devices constructed landward of the "critical line" as defined by the agency. Therefore, the percentage of shoreline that is hardened is presently unknown, and trends are difficult to evaluate because permits were not tracked (or were not consistently tracked) prior to 2001. In addition, nonstructural alternatives for shoreline stabilization exist, but are not currently required by DHEC-OCRM.

Other federal, state, and local laws, regulations, and programs will also influence shoreline development in ways that are not well understood. For example, the Federal Emergency Management Agency has plans to revise flood rate maps in South Carolina through a "Flood Map Modernization Initiative." It is unclear how updated topography, storm surge projections, erosion rates, or other data may influence the National Flood Insurance Program, and in turn, coastal development in South Carolina. The state is also considering an expanded wind insurance "pool" that subsidizes coastal insurance rates. Some local government ordinances may be more restrictive of shoreline developments and alterations (e.g. buffer ordinances vary among coastal counties and municipalities). Finally, market and non-market incentives and disincentives will likely play a key role in future shoreline development and/or retreat options.

The state's Beachfront Management Act, as amended in 1990, directs DHEC-OCRM and the eighteen beachfront local government units to consider many issues related to beachfront development and management. Local governments are encouraged to develop Beachfront Management (BFM) plans that are designed to complement and assist in implementing the policies of the Act. Further, the Act requires that the plans be reviewed and updated every five years. The reviews are performed to allow for adjustments that may be necessary due to natural events, increases or decreases in erosion rates, man-made actions, and availability of new data. Although the 2003 review of the plans found that most communities were either in compliance or had made significant efforts to come into compliance, these plans could be improved upon and would benefit from coordination and technical assistance from staff. Given South Carolina's priority ranking of coastal hazards, plans should be re-evaluated based on the increasing risks associated with sea level rise and hurricanes, and the pressure to develop the remaining shorelines of our coast. Improvements to the BFM plans could be realized through enhancing strategies for meeting the 40-year retreat policy, strengthening coordination of post-disaster recovery activities, and increasing the ability to integrate data and GIS capabilities in the planning process.

Recently, the program has been under heightened public scrutiny due to proposed encroachments of large-scale developments, swimming pools, septic systems, and individual residences in the beachfront setback area. Renourishment projects continue at a rapid pace, and erosion control devices are increasing along tidal creeks and estuarine

shorelines. Natural and socioeconomic data limitations, in concert with complex regulatory and legal issues, result in an unclear understanding of future scenarios, and of our ability to adapt to shoreline change in the coming decades.

Conclusion

1. **Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.**
   - Obtain comprehensive coastal data, including LIDAR, remotely sensed imagery, aerial photography, bathymetry data, and coastal ocean physical observations, to improve assessments of past and projected shoreline erosion rates and sea level rise.
   - Examine potential impacts of shoreline change on local communities and natural resources.
   - Integrate and share data and analyses related to shoreline change in South Carolina.
   - Evaluate the effectiveness of the state's "shoreline retreat" policy, and alternatives to armoring non-beachfront shorelines.
   - Evaluate influences of non-CZM programs and regulations on shoreline development and retreat, especially the regulatory influences of local government and FEMA.
   - Evaluate market incentives and disincentives for shoreline development and retreat, including public and private insurance and subsidies.
   - Assist local governments with updating local Beachfront Management Plans.
   - Perform a meta-analysis of beach renourishment projects with a focus on project impacts, durations, and trends.

2. **What priority was this area previously and what priority is it now for developing a 309 strategy and designating 309 funding and why?**

Last Assessment	This Assessment
High __X__	High__X__
Medium ____	Medium ____
Low _____	Low _____

Due to the growing number of renourishment projects, the increasing risks associated with sea level rise and hurricanes, and the pressure to develop the remaining rural shorelines of South Carolina, coastal hazards remain a top priority for the state's coastal zone management program.

STRATEGY

Primary Objective: *Based on comprehensive analyses of natural and socioeconomic conditions, evaluate policy alternatives to address future shoreline change due to erosion, sea level rise, and coastal storms in South Carolina.*

Proposed Program Changes

DHEC-OCRM needs to revisit and update its Shoreline Retreat Strategy under the Beachfront Management Act, as well as its regulations concerning non-beachfront shoreline protection structures. The agency also needs to support an update of local beachfront management plans, which, among other elements, address shoreline retreat strategy and policies for rebuilding after damage from hurricanes.

Strategy Activities

For the next five years, DHEC-OCRM will focus most of its 309 resources on building coastal communities' resilience to shoreline change from storms (including hurricanes), sea-level rise, and other natural and anthropogenic forces. DHEC-OCRM will work closely with researchers and partner agencies with the mission of gathering accurate information, conducting an analysis of the risks to South Carolina's coastal communities and habitats, and developing tools to be utilized by coastal regulators, planners, local agencies and the public. DHEC-OCRM will use the data, the analyses, and the tools to make policy recommendations and to aid local governments in updating beachfront management plans. Policy recommendations may address shoreline retreat, non-beachfront shoreline protection structures, and avoidance of development in hazardous areas.

The following represent the major components and specific tasks of the strategy:

1. Preparing for a Shoreline Change Steering Committee

   Task A: Shoreline Summits – DHEC-OCRM will hold two staff summits to explore shoreline management issues. The first summit will focus on internal discussions of challenges and opportunities across DHEC-OCRM divisions; the second will be hosted by the SC Sea Grant Consortium, and will include invited panel presentations and discussion among experts from geological, biological, and political sciences, engineering consultants, and local government.

   Task B: State of Knowledge Reports – "State of Knowledge" reports will be prepared as foundation documents for the Shoreline Change Steering Committee, including reports on: a) past and projected shoreline change, related research, and information needs; and b) policy alternatives, with a focus on the state's "shoreline retreat" policy, and associated challenges and opportunities.

   Task C: Steering Committee Meetings – DHEC-OCRM staff will sponsor facilitated meetings of a Shoreline Change Steering Committee to guide data acquisition, research, and policy discussions over the course of the 5-year strategy period. The

Committee will be made up of representatives of government, private industry, academia, and nonprofit stakeholder groups.

Task D: Expanding GIS Capabilities – DHEC-OCRM will lay the groundwork for a web-based GIS portal to host information related to shoreline change and coastal hazards. This will be accomplished through: 1) the purchase of an ArcGIS server, relational database software, and other required technologies; 2) expanding personnel with GIS skills; and 3) collaborating with the NOAA Coastal Services Center for technical support; and with other resource agencies and the academic community for input in system design and integration. The portal may eventually include both public and private components for data/resource sharing, analysis, real-time update and discussion, as well as tracking for NOAA Performance Indicators.

2. Research and Analysis

Task E: Meta-analysis of past renourishment projects, monitoring results and research findings in partnership with the DNR.

Task F: Based on Steering Committee recommendations, DHEC-OCRM may acquire spatial data, such as accurate topography and bathymetry, shoreline imagery, or the types and spatial extents of shoreline stabilization devices, to support research efforts associated with this Strategy.

Task G: Based on Steering Committee recommendations, DHEC-OCRM will support research that may include analyses of past and future shoreline changes, vulnerability analyses, sea-level rise scenarios, or effects of shoreline stabilization devices.

Task H: Based on Steering Committee recommendations, DHEC-OCRM will support modeling and integration exercises that will focus on projections of shoreline change in South Carolina, including changes induced by land use, erosion, storms, sea-level rise, and combinations of these drivers.

Task I: A decision support tool will be developed to foster improved management decisions and policies that are tailored to local circumstances. A web-based GIS tool will likely incorporate demographic trends with vulnerability analyses to evaluate the impacts of shoreline change on community and natural resource resiliencies. Based on guidance from the Steering Committee, the tool will be designed for use by the DHEC-OCRM Planning Division in working with local governments on beachfront management planning, and by the DHEC-OCRM Regulatory Division in making decisions regarding renourishment and beachfront developments. It is hoped that the tool will support other agencies in planning, outreach, and management activities related to shoreline development as well.

Task J: Develop Outreach Plan - DHEC-OCRM staff will develop an outreach plan for the Shoreline Change initiative in cooperation with the South Carolina Sea Grant Consortium.

3. Targeted Program Changes

Task K: Specific recommendations for regulatory and policy changes will evolve from the outcomes of Tasks A - I and steering committee meetings. Policy changes may address shoreline retreat, non-beachfront shoreline protection structures, and the avoidance of development in hazardous areas.

Task L: Aid local governments in updating local beachfront management plans. Staff will work with six of the eighteen local beachfront communities per year to provide technical assistance in updating plans. Selection of communities for each year will be based upon previous review schedules and progress of updates at the community level. Objectives of working with communities will be to enhance components of the plans specifically as they relate to 1) preserving and enhancing public beach access sites, 2) planning for areas seaward of the setback line through conventional zoning and land-use, 3) strengthening coordinated efforts for post-disaster redevelopment, and 4) achieving the goal of a 40-year retreat policy. Additionally, staff will work with communities to integrate data and GIS capabilities into the plans where possible.

Potential Impacts of Program Changes

This strategy will help build resilient communities that take into account future projections of shoreline change by avoiding hazardous areas and retreating to allow the natural migrations of shoreline habitats. The outcomes will reduce the costs of flood disasters to individuals, businesses and all levels of government.

Justification of Appropriate Means

Discussions at a 309 Strategy meeting of stakeholders and staff emphasized the need for accurate data, including coastal elevation, sea level rise and resource vulnerability data, and how the lack of this type of information impeded planning and modeling efforts. Additionally, the group highlighted a need for better communication and outreach to meet the technical needs of communities. This strategy will address these concerns by providing important tools and products to state and local planners, coastal regulators, and the public for evaluating risks associated with coastal communities and shoreline change. Program changes related to the state's Beachfront Management Act, Critical Area regulations, or other DHEC-OCRM policies are the appropriate mechanisms to address future shoreline change in South Carolina. These changes should be researched and considered in collaboration with federal, state, and local agencies and stakeholders. This collaboration will be fostered through the establishment of a Shoreline Change Steering Committee with DHEC-OCRM as the lead agency.

Work Plan

Year 1:

- Internal DHEC-OCRM Shoreline Change Summits (DHEC-OCRM internal staff, invited speakers)
- Develop "State of Knowledge" white papers on shoreline change and related policy alternatives in South Carolina.

- Define and contact project partners; establish steering committee; develop a detailed work plan; determine geographic scope of the project; and identify data needs.
- Expand GIS Capabilities within DHEC-OCRM.
- Meta-analysis of past beach nourishment activities and studies.

Year 2:

- Maintain steering committee.
- Begin funding data acquisition and research.
- Fund modeling and integration efforts.
- Scope decision-support tool and other final products.
- Provide assistance to local governments in updating Beachfront Management Plans.

Year 3:

- Maintain steering committee.
- Finalize data acquisition, research and model development.
- Construct decision support tool and other products.
- Develop outreach plan to get products to end-users.
- Provide assistance to local governments in updating Beachfront Management Plans.

Year 4:

- Maintain steering committee.
- Test market draft tools and products.
- Refine and finalize tools and products.
- Develop product and tool evaluation metrics.
- Finalized outreach plan.
- Begin implementation of the outreach plan.
- Provide assistance to local governments in updating Beachfront Management Plans.
- Draft specific regulatory and policy amendments to address community resiliency to shoreline change; bring before the Board of Health and Environmental Control for consideration.

Year 5:

- Maintain steering committee.
- Implement outreach plan.
- Evaluate products and tools.

Estimated Costs

Year 1	$ 295,000
Year 2	200,000
Year 3	150,000
Year 4	150,000
Year 5	150,000
	$945,000